WHAT IS CLAIMED IS:

1. An apparatus for detecting agents in a fluid delivery system in which fluid flows through a fluid conduit, the system comprising:

an agent sensor coupled to the fluid conduit for providing agent signals in response to agents sensed in the fluid conduit, said agent signals having an age;

a processor that receives the agent signals, determines weighted agent signals by applying a weighting value to the agent signals that gives differing weighting to different agent signals depending on the age of each agent signal, and determines an agent concentration value from the weighted agent signals.

2. The apparatus of claim 1, wherein the processor further compares the agent concentration value to an alarm threshold and, in response to the agent concentration value exceeding the alarm threshold, provides an alarm signal, and wherein the apparatus further comprises:

an alarm that is activated by the alarm signal.

3. The apparatus of claim 1, further comprising:

a display for providing an indicia of the agent concentration value.

4. The apparatus of claim 1, further comprising:

a fluid control device, said fluid control device acting on a section of the fluid conduit to control the flow of fluid through the fluid conduit.

5. The apparatus of claim 4, wherein the processor controls the fluid control device.

6. The apparatus of claim 5, wherein the processor compares the agent concentration value to an alarm threshold and, in response to the agent concentration value exceeding the alarm threshold, causes the fluid control device to stop fluid from flowing through the fluid conduit.

7. The apparatus of claim 1, wherein the agent concentration value is determined by applying the weighting value to each agent signal as a separate calculation.

8. The apparatus of claim 1, wherein the agent concentration value is determined by applying the weighting value to a past agent concentration value.

9. A fluid delivery system for introducing fluid to a patient from a fluid source, the system comprising:

a fluid conduit downstream of and in fluid communication with the fluid source;

a cannula in fluid communication and downstream of the fluid source and fluid conduit, the cannula configured to be introduced into a patient's body to provide fluid thereto;

a sensor coupled to the fluid conduit for providing signals in response to agents sensed in the fluid conduit, said agent signals each having an age;

a processor that receives the agent signals, determines weighted sensor signals by applying a weighted value to each agent signal based on the age of the agent signal, and determines an agent concentration value by processing the weighted sensor signals.

10. The system of claim 9, further comprising:

a fluid control device, said fluid control device acting on a section of the fluid conduit to control the flow of fluid through the fluid conduit.

11. The system of claim 10, wherein the processor controls the fluid control device.

12. The system of claim 11, wherein the processor compares the agent concentration value to an alarm threshold and, in response to the agent concentration value exceeding the alarm threshold, causes the fluid control device to stop fluid from flowing through the fluid conduit.

13. The system of claim 12, further comprising:
an alarm that is activated by the alarm signal.

14. The system of claim 9, wherein the agent concentration value is determined by applying the weighting value to each agent signal as a separate calculation.

15. The system of claim 9, wherein the agent concentration value is determined by applying the weighting value to a previous agent concentration value.

16. A method of detecting agents in a fluid delivery system in which fluid flows through a fluid conduit, the method comprising the steps of:

(a) providing a first series of agent signal values, wherein each agent signal value is indicative of the instantaneous amount of agent in a fluid conduit, and each agent signal has an age;

(b) determining one or more weighted agent signal values by applying a varying weighting value to one or more of the agent signal values based on the age of each agent signal value; and

(c) determining a primary agent concentration value by processing the weighted agent signal values.

17. The method of claim 16, wherein step (b) includes the step of applying the varying weighting value to each agent signal as a separate calculation.

18. The method of claim 16, wherein step (b) includes the step of applying the weighting value to a past agent concentration value.

19. The method of claim 16, comprising the further steps of:

(d) comparing the primary agent concentration value to a first alarm threshold.

20. The method of claim 19, comprising the further step of:

(e) stopping the flow of fluid through the fluid conduit in response to the primary agent concentration value exceeding the first alarm threshold.

21. The method of claim 16, including the further steps of:

(f) providing a second series of agent signal values, wherein each agent signal value is indicative of the instantaneous amount of agent in a fluid conduit; and

(g) processing the second series of agent signal values to determine a secondary agent concentration value.

22. The method of claim 21, wherein the second series of agent signal values is a subset of the first series of agent signal values.

23. The method of claim 21, comprising the further step of:

(h) comparing the secondary agent concentration value to a secondary alarm threshold.

24. An apparatus for detecting agents in a fluid delivery system in which fluid flows through a fluid conduit, the system comprising:

an agent sensor coupled to the fluid conduit for providing agent signals in response to agents sensed in the fluid conduit;

a processor that receives an agent signal, determines a weighted previous agent concentration value by applying a weighting value to a previous agent concentration value, and determines a current agent concentration value from the agent signal and the weighted previous agent concentration value.

25. The apparatus of claim 24, wherein the processor further compares the current agent concentration value to an alarm threshold and, in response to the current agent concentration value exceeding the alarm threshold, provides an alarm signal, and wherein the apparatus further comprises:

an alarm that is activated by the alarm signal.

26. The apparatus of claim 24, further comprising:

a display for providing an indicia of the current agent concentration value.

27. The apparatus of claim 24, further comprising:

a fluid control device, said fluid control device acting on a section of the fluid conduit to control the flow of fluid through the fluid conduit.

28. A method of detecting agents in a fluid delivery system in which fluid flows through a fluid conduit, the method comprising the steps of:

(a) providing an agent signal value which is indicative of the instantaneous amount of agent in a fluid conduit;

(b) determining a weighted previous agent concentration value by applying a weighting factor to a previous agent concentration value;

(c) determining a primary agent concentration value by processing the agent signal value and the weighted previous agent concentration values.